History of Numerical Weather Prediction

Vilhelm Bjerknes, known as the "father of numerical weather prediction," made a huge contribution by suggesting the laws of motion (Newtonian mechanics) are related to thermodynamic principles. In 1922, Lewis F. Richardson formally proposed that weather could be predicted from solving "the equations of atmospheric motion." Realizing the formidable nature of such an endeavor, he proposed a weather prediction center in which a giant circular amphitheater that would seat 26,000 human "calculators." The calculations had to be done in a certain order so each person in the amphitheater would perform the necessary additions and subtractions to the command of a "conductor."

His attempts failed because the method predicted pressure changes far larger than had ever been observed. It was later discovered that the failure wasn't due to the equations themselves but to the approximations he used to solve them. In other words, he got the physics right, but the numerical analysis was wrong. As a result, this idea was abandoned for a few decades until computer were invented.